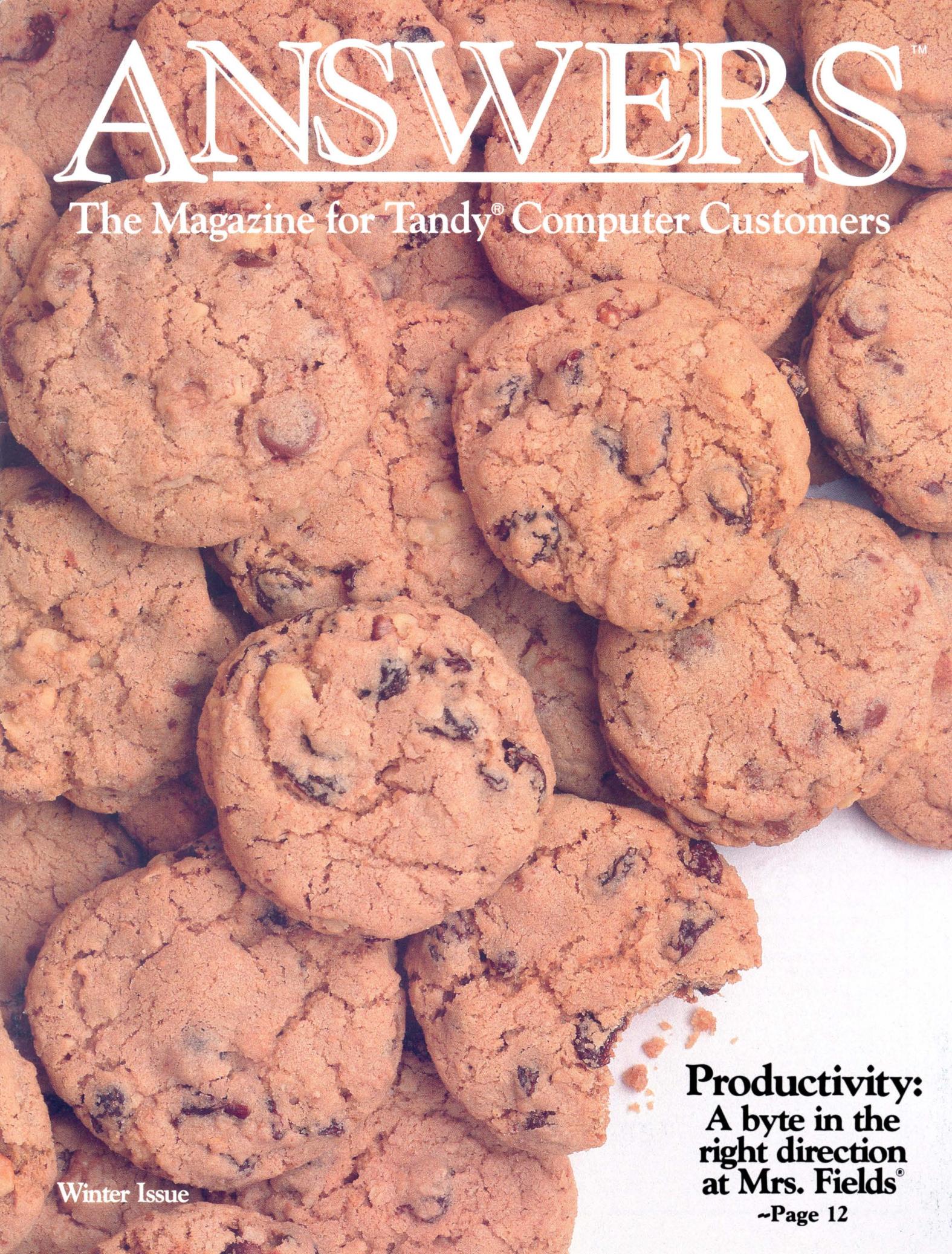


# ANSWERS™

The Magazine for Tandy® Computer Customers



Winter Issue

**Productivity:**  
A byte in the  
right direction  
at **Mrs. Fields®**

~Page 12

## The Tandy Connection

There's been a lot of talk in the trade press about networking, probably one of the most complex issues of the high technology "Age of Information".

Today, more and more end users in the small, medium and Fortune 500 businesses are seeing the need for efficient, economical methods to tie together the computerized aspects of their operations. They are demanding complete solutions to their networking needs. It no longer suffices to have a vendor "just hook-up the machines".

Radio Shack has long been a pioneer in networking, beginning with the Network 3 that has become popular in schools. We have also developed viable networking capabilities for the business community, starting with ARCNET and now ViaNet.

But we go a few steps further. We work with our customers to determine their unique needs for establishing and connecting workgroups within their operations. We're on hand for not only the initial installation, but for follow-up needs as well. And we make sure the users know the systems through our training programs.

We are a total solution company committed to helping our customers select the right software, the right hardware and the right training for their workgroups to operate efficiently and productively. Our commitment is backed by one of the most dedicated service and support operations in the industry, and we are constantly researching developments in the industry to insure that Radio Shack customers have the best options available.

We are the company that is "in business . . . for business," and we mean business.



—John V. Roach  
Chairman, CEO and President  
of Tandy Corporation

## LETTERS

### TO THE EDITOR

Editor:

A computing tip to share, which seems to take longer to explain than to do:

Because of its simplicity, I handle a lot of my correspondence (like this letter) with the TEXT function of Tandy Deskmate (on a Tandy 1200 HD).

Recently, after composing a lengthy questionnaire/letter that I would need for a meeting that night, I realized I would not have the use of a copy machine, yet Deskmate TEXT does not have a function to make multiple copies.

To solve the problem, I entered enough (CR) carriage returns to reach the 66th line of page 1. I then F10-saved the document (as QUEST1.DOC), exiting to the Main Menu.

Next, I opened a new document as QUEST2.DOC, then F5-merged QUEST1.DOC to it.

I F6-saved QUEST2, then F5-merged it to itself and F6-saved again, creating two copies in one document. I repeated the process, which doubled the number of copies each time, until I got an out of memory message at the bottom of the screen.

I hit ENTER to clear the out of memory message, then F5-merged single copies of the original QUEST1 until I got the memory message again.

Pressing the END key took me to the bottom of the multiplied-document, and the page number told me how many copies I had of the original document in the QUEST2 file.

Using PrtSc, I printed out the long file until I had enough copies for the meeting.

Regards, Richard Ellers

Warren, Ohio

*Ed Note: While Mr. Ellers' routine performs as noted, PrtSc generates a screen dump. Control P may be used as a print alternative to avoid printing screen instructions on the documents. Radio Shack assumes no responsibility for the above routine.*

*Address your correspondence to: ANSWERS Magazine, 300 One Tandy Center, Fort Worth, TX 76102. Letters sent become property of the magazine and cannot be returned. We cannot respond to every letter.*

## NOTES

### FROM THE EDITOR

As noted on the back cover, TCBUG is now Tangent. While the name may have changed, the group continues to gain momentum as an influential organization. One of the group's outstanding activities is the annual meeting held each spring in Fort Worth, Texas. This year's conference, the organization's fifth annual event, is scheduled for April 26-29 at the Worthington Hotel in Fort Worth.

As in past conferences, upper management from Tandy Corporation and its Radio Shack Division will meet with the group to discuss various topics. Bill Gates, CEO of Microsoft Corporation, is among the renowned figures in the industry who will be featured as keynote speakers.

Topics to be presented this year include networking, 286 versus 386 technology, desktop publishing, the state of the industry and much more. Tangent members will conduct special interest sessions including a CompuServe demonstration and Xenix and MS-DOS applications. New at this year's conference will be exhibits by various hardware and software vendors.

The conference is open to non-members as well as members. For more information on the conference and registration, write Tangent at P.O. Box 17580, Fort Worth, TX 76102.



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# Earth, wind and water:

# Tracking the elements



Tom Murray (left) and geologist Bobbie Myers examine data received from instruments emplaced at Mount St. Helens.

## The adaptability of micro-computers contributes to man's study of the environment.

Throughout history, man's fate has frequently fallen prey to the ravages of nature. Earthquakes, floods, volcanic eruptions and other natural phenomena have left devastation in their wake. Although unwittingly, mankind has also contributed to the degradation of its environment with by-products of the Industrial Revolution which pollute the air, water and land.

Man is, however, a thinking animal and the Industrial Revolution also provided him with the tools to study the natural and man-made factors that influence his existence. Over the decades, agencies have been created to aid man in his efforts to gain a better understanding of his environment.

One such agency is the David A. Johnston Cascades Volcano Observatory (CVO) of the United States Geological Survey (USGS) of the Department of the Interior. Located in Vancouver, Washington, the CVO monitors the activity of Mount St. Helens, the volcano that attracted worldwide attention when it erupted on May 18, 1980 with catastrophic consequences. The observatory is in fact named in memory of a volcanologist who was killed while observing activity at a monitoring site on May 18.

Since 1980, Mount St. Helens has continued to erupt sporadically as the lava dome inside the crater builds and shifts to accommodate the movement of the magma\* to the surface. The monitoring of these and other volcanic activities has allowed the USGS to

\*Magma is molten rock beneath the surface. When it hits the surface, it becomes lava.

forecast possible eruptions at Mount St. Helens within days and sometimes weeks, although the magnitude of the eruptions may remain unpredictable.

According to Tom Murray, USGS operational geophysicist, their goal is to further understand volcanic processes toward predicting more accurately when and how volcanoes will erupt. "If Mount Rainier started shaking, hopefully, from what we've learned at Mount St. Helens, we'd be able to go up there, put in some instruments, take measurements and, from the data we gathered here, we'd be able to accurately predict what was going on there."

## "We're researching new techniques to predict volcanic activity."

### Seismic Signals

The USGS does have data, and lots of it. The Vancouver operations area is an assortment of seismographic and other data recording equipment that receives radio signals from instruments situated in proximity to the lava dome in the crater at Mount St. Helens some fifty miles away. Murray explained there are actually two systems of telemetering these measurements. Seismometers measure ground shaking due to harmonic tremor and earthquakes generated by the upward migration of magma to the surface. Their data are radioed back via the analog telemetry system. Additionally, the low frequency digital telemetry system is used to measure tilt, temperature, strain and gas production of the volcano at predetermined intervals. Field devices read the data from the various instruments, digitize the data and transmit the information by radio to a receiver in the Vancouver office where the output of the radio receiver goes into a Radio Shack Model 100. Said Murray, "We transmit everything in standard Bell 103 modem tones and RS-232, so we just feed the output of the radio directly into the Model 100. It decodes the data, stores it, and every ten minutes dumps it into a central computer. We can then quickly make plots and see how, or if, the various measurements are changing."

Murray, who wrote the decoding program in BASIC "with a couple of peeks and pokes," has found other uses for the Model 100. The analog seismic signals are digitized by a data acquisition device that plugs into the Model 100's system bus. The Model 100 computes a data point proportional to seismic activity each minute, which gives them a real time digital report while the analog data is recorded on seismograph drums.

While monitoring Mount St. Helens is the primary task of the USGS in Vancouver, they also work with their sister observatory in Hawaii and with other countries in the "Ring of Fire," a periphery area of the Pacific Ocean prone to earthquake and volcanic activity. Murray, who has assisted in volcanic monitoring in several countries, noted that it was, in part, the need for field testing that prompted him to consider the Model 100. "We needed a battery operated computer so we could take it out in the field and hook it up to a radio out there. Then we can trouble shoot the site to see if the radio transmissions are okay."

"We're researching new techniques and developing new instrumentation to predict volcanic activity and we hope to export the technology so that other countries that don't have the resources we do can start monitoring their volcanoes more effectively. We're not unique, but we like to think we're in the forefront," concluded Murray.

### Data from the desert wind

The Model 100 has proved to be an asset in the field for another agency headquartered in Reno, Nevada. The Desert Research Institute (DRI) is a research and development organization consisting of five separate entities that conduct environmental studies. One of these entities, the Energy and Environmental Engineering Center (EEEC), is tasked with monitoring air quality. A research arm of the University of Nevada, DRI establishes and maintains monitoring sites for federal and state concerns as well as for segments of private industry.

While most of the monitoring stations are located in the desert areas of the Southwest at such prosaically named sites as Bullhead City, Meadview, Turquoise and Spirit Mountain, the DRI also establishes stations throughout the United States.

Rick Brown, associate research engineer for DRI's EEEC, related a project DRI is undertaking for the National Parks Service. "We're doing 30 sites for them located in over 15 states from Maine to Arizona." According to Brown, the project is designed to help preserve the environment of the parks. "Environmental deterioration is a very subtle thing," said Brown. "The degradation happens slowly; like gradual loss of vision."

All of the projects undertaken by the EEEC deal with monitoring substances that affect air quality. A remote site, often referred to as "the sniffer" by area residents, is equipped with



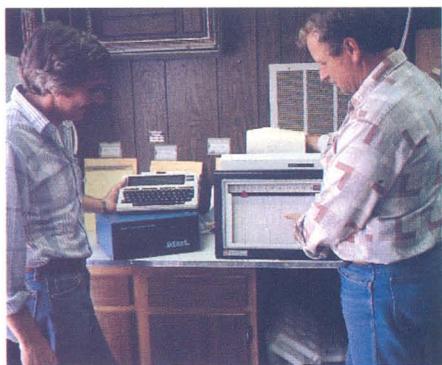
*Information gathering sites such as this one near Meadview, Nevada, provide data for air quality study.*

specialized instrumentation to gather air samples and record the content, take ozone and temperature readings, check wind speed and direction, and measure visibility and other elements which are useful in air quality research. Samples are analyzed by gas chromatography to identify particulates and gaseous pollutants including man-made varieties. Noted Brown, "Since many elements in the air have no natural source, the recording of their presence in a migrating air mass is good evidence of an urban history."

According to Brown, information is gathered through dataloggers which generate graphs of the air activity. "The Model 100 is essentially an accessory at the sites. In the National Parks project, it enables the field site technician to interact with the data collection system in the same manner that the person in the Denver office would." All sites are also equipped with a DMP-105 printer to facilitate information checking. Brown explained, "When you go in and query the datalogger, say for a daily summary of the hourly averages for the previous

five days for every hour, you get a five page print out. This is far too much to assimilate on a datalogger front panel. With the Model 100 and the 105 printer, you get a record at the site you can reference."

Gary Jones, technician for sites around Las Vegas, Nevada, found the Model 100 to be useful for verifying data recorded on cassette tapes which



*Rick Brown (left) and site technician Ken Baker check information at the Meadview site.*

are sent to the home office. "It comes in handy and can be a real time-saver," Jones commented.

"I'm an engineer, not a scientist," said Brown wrinkling his brow. "The information gathered at the sites is studied by scientists who write papers that help to increase our knowledge on an on-going basis. If it helps preserve our environment, I'm all for it."

### Water: The essential element

In Sonoma County, California, yet another agency is concerned with the preservation and control of another valuable resource: water.

"Our agency was created around 1949 to deal with flood problems and water supply problems in Sonoma County," stated Bill Stillman, chief engineer for the Sonoma County Water Agency in Santa Rosa, California. "Since then, the area has seen tremendous growth. What we do is try to keep up with the demand for water and solve long term problems."

No small task for an agency that produced a volume of water totalling 43,223 acre-feet last year, serving between 250,000-300,000 people with water including residential, industrial and commercial usage. Essentially, the agency is a special purpose government agency that wholesales water to Sonoma and Marin counties, undertakes flood control projects, generates electricity and is even responsible for

certain recreational facilities as part of the flood control program.

While the primary pumping source of water for the agency is the Russian River, the agency has water storage capacity in two Corps of Engineers dams in the river watershed and the local ground water resources are relatively untapped. Additionally, the agency has several construction projects in progress at any given time to meet the increasing demand for water.

Keeping track of the water flow, pumping stations, storage facilities and construction projects in itself presents an awesome task. Add to that the maintenance of everyday operations and the agency's workload takes on considerable proportions. "We definitely keep busy," grinned Sam Smith, senior engineering programmer analyst who has been with the agency for eleven years.

Smith recalled that many of the agency's operations that are now computerized were once manual tasks. "We started out with a (TRS-80) Model II for a technical writer," he noted. They then added Model 16s for clerical support and began programming for other functions. "We looked around and asked 'where are we heading?' We just couldn't keep adding stuff and have an integrated system," Smith said. "The (upgraded) clerical 6000 was a success story. It basically revolutionized the whole office. And the tech writing was going well. Management needed computer power and they liked the systems we had. We worked with the people at the local (Radio Shack) Computer Center. Robert Biasotti, the manager, and Bob Edelbrock helped us a great deal."

### "We're trying to conserve water"

Today, the Tandy 6000 has become an integral part of several of the operations of the agency. Systems have been added for accounting functions and for tracking information on construction projects. Most systems have from six to eight users and the clerical and managerial systems are linked through the Xenix MICNET network.

In the operations center, next door to the agency's new administrative

building, a Tandy 6000 acts as an adjunct to the specialized computer system that controls the various remote pump stations and release points via radio signals. According to Smith, the Tandy 6000 receives information regarding water body flows in a 24 hour period. Based on that information, the agency releases water as necessary. "A certain minimum flow is required by law," noted Smith. "We use the 6000 to monitor an hourly flow data base, over a 24 hour period of time, to determine if we need to increase or decrease water releases from the two dams. We're trying to conserve water. We don't want to release needed water out into the ocean."

### Learning from history

A large part of the agency's operations are dependent on historical flow information. "For example," explained Smith, "if we take the rainfall over the last 66 years and the resulting flows, we can randomly pull that information using different parameters to determine what actions we should take in given situations." To help establish such a vast informational base, Smith is currently customizing Unify software to accommodate the historical



*Sam Smith beside a model of one of the agency's pumping operations on the Russian River.*

information on all the flows of all the creeks and rivers in Sonoma and surrounding counties. Once completed, this system will feed into the agency's digital reservoir model which will also be moved to a Tandy 6000.

As the agency continues to grow to meet the water demands of the area, Smith sees other areas where computers would be an effective asset to the agency. "It's really been a success story I guess. It has improved our efficiency and we'll be doing more with our models and simulations. I guess it's all water over the dam." Pardon the pun.

# Managing with success

For two Denver entrepreneurs, an electronic phone system is an indispensable business tool.

Bill and Diane Biesendorfer have found the elusive combination of happiness and success. Just four years ago, they took the biggest gamble of their lives: they founded Management Specialists, a professional homeowner's association management company in Westminster, Colorado.

Bill Biesendorfer is no stranger to the world of property and association management. He served in the Navy Civil Engineer Corps and, after leaving the service, he went to work for the

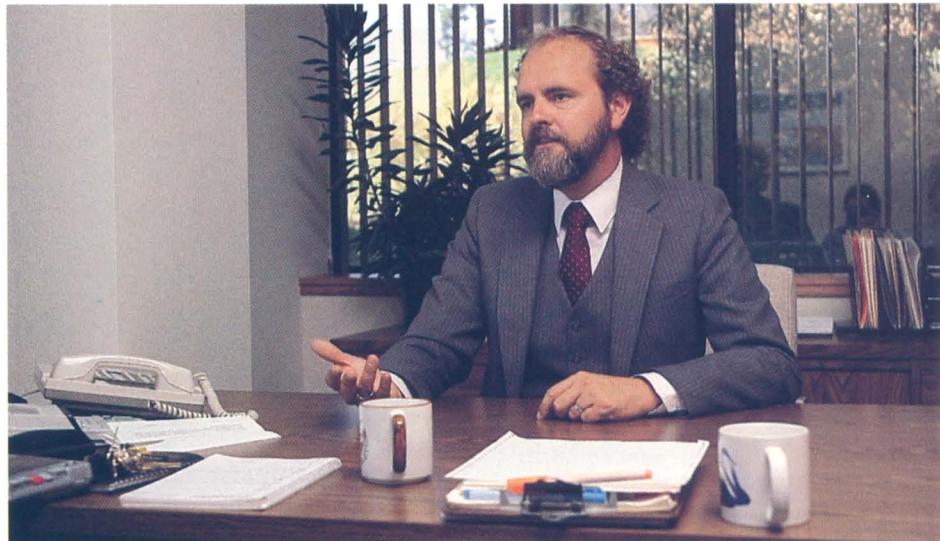


System 601 includes a variety of powerful business-oriented features.

Veteran's Administration. Diane had been a legal secretary and the secretary to the city manager of Arvada, Colorado. In addition, Bill was the president of the homeowner's association of the development where the Biesendorfers lived. When the association was formed, homeowners were enthusiastic about being a part of "their" association.

## You do it

According to Biesendorfer, it didn't take long before the volunteers began to lose their enthusiasm. "I said to one volunteer that we weren't doing our job because we weren't following up on delinquencies in dues," he recalled. "He said, 'If you think that you can do a better job, do it yourself, I quit.' That's when the idea clicked in my



Bill Biesendorfer, president of Management Specialists, discusses the important role that an electronic phone system plays in a modern business.

mind." Biesendorfer took on management of the association, formed Management Specialists and operated it with Diane from a room in their home.

Growth was rapid for Management Specialists. Within six months, the business had grown to the point where the Biesendorfers could no longer run it from their home. They moved to an office and hired a staff.

## Initial expansion

When Management Specialists leased their first office, the business needed all kinds of new equipment, including a phone system which they leased from Radio Shack. The Biesendorfers liked the idea of leasing a phone system. "For a new business, it's very important to have the ability to lease instead of putting out a lot of cash to buy it," Biesendorfer said.

Management Specialists' first phone system was a Radio Shack System 403 capable of handling ten extensions and expandable to four lines. "We knew we needed a phone system, but we didn't know much about them. Radio Shack had an ad in the paper so we decided to see what they had to offer. It was a clear choice. We thought that Radio Shack would be the best, and we haven't been disappointed."

Before they knew it, the business had outgrown both its office space and its phone system. "When we leased our 403, we leased it for three years but we only used it for a little over a year," Biesendorfer said. "When it came time to upgrade, our first fear was that we were going to have to pay-off that whole lease. We were pleased

antly surprised when the people at the phone center said, 'No problem, we'll just take it back, cancel the old lease and start you with the new one.'"

## More phones, more future

When Management Specialists moved to new office space they upgraded to the System 601, expanding their telephone capacities to sixteen extensions and six incoming lines. "When we got the System 601, we didn't shop at all. We just called Radio Shack," remarked Biesendorfer.

Biesendorfer finds that the features offered by the System 601 help keep operations running smoothly. Since clients and suppliers are spread out over the entire Denver area, it's often difficult to handle business in person. Each employee has frequently called phone numbers and long distance service access numbers programmed directly at the extension for speed dialing, saving time and eliminating keystrokes. Another feature that Biesendorfer enjoys is the conferencing capability. One of the functions of a homeowner's association manager is to act as the liaison between an association and their attorney. Rather than be the third party, Biesendorfer sets up a conference call between all parties involved. In doing so, business can be conducted with a single phone call instead of a series of telephone calls back and forth among the parties.

The Biesendorfers have the best of both worlds. Not only do they have a successful business; they also like what they're doing. That combination makes Bill and Diane Biesendorfer very happy people.

# Solving the proposal puzzle

A computer communications system brings insurance agents together while reducing their dependence on the home office.



Dan Cerny helped to move the power of computing into the hands of agents.



The proposal generation software created by Security Mutual Life speeds the complex process of matching insurance with a client's needs.

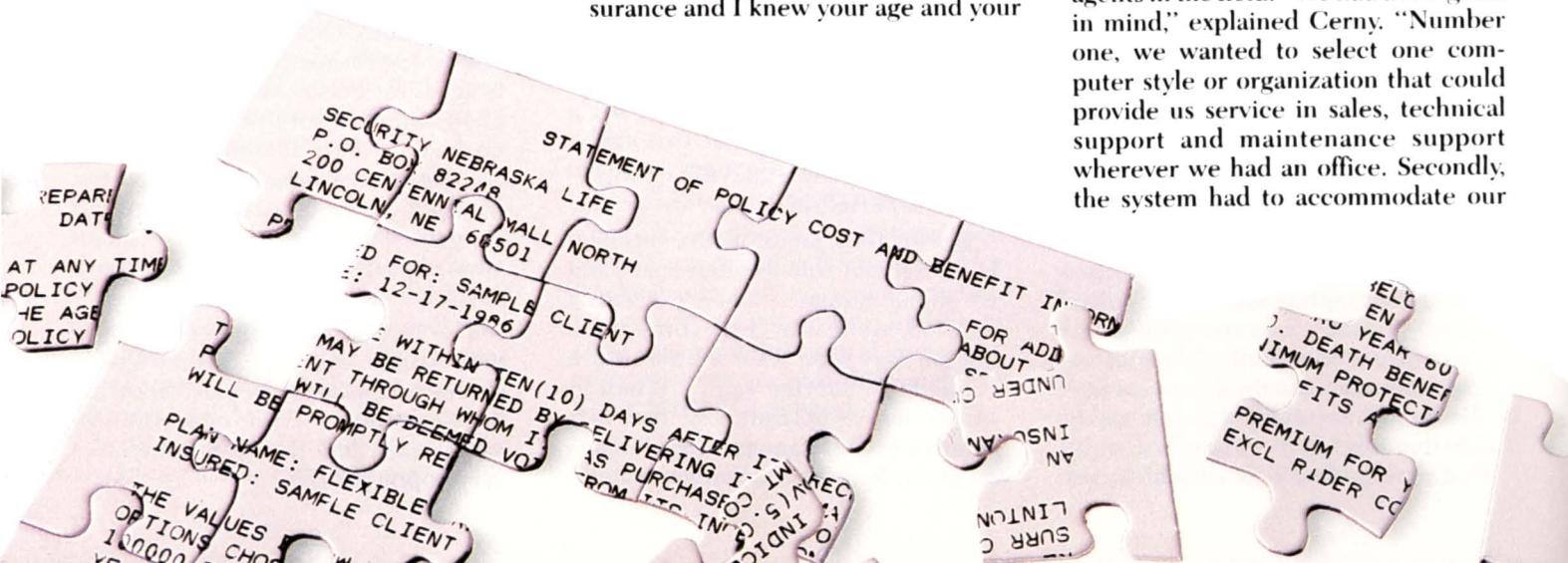
"You can't sell insurance today without the power of computers." That's the way Dan Cerny, second vice president, computer operations for Security Mutual Life in Lincoln, Nebraska, describes the role of computers in the insurance industry. Cerny should know; he was in the computer end of the insurance industry before the advent of the microcomputer. "Insurance companies traditionally have been the instigators of computerization going back to the first mainframes in the late fifties and early sixties," Cerny said. "That's really what got computers going in business."

The use of mainframes did simplify the day-to-day business of an insurance home office, but, according to Cerny, those were more simple times; at least in the insurance industry. "Until about three or four years ago, if you wanted to buy \$100,000 worth of insurance and I knew your age and your

sex, I could check the rate book and tell you how much it would cost per thousand," explained Cerny. "Insurance isn't that way anymore; you need the power of a computer to calculate all the different 'what if' situations."

To meet these new needs, Security Mutual Life created proposal generation software for its mainframe that would make calculations and help to determine the best insurance product for both the client and the company. The mainframe did simplify operations at the home office, but insurance policies are typically sold by agents physically removed from the home office and its mainframe computer.

To allow the agents access to the power of the company's mainframe, Security Mutual Life initiated a program in 1980 to move computing power out of the home office to the agents in the field. "We had a few goals in mind," explained Cerny. "Number one, we wanted to select one computer style or organization that could provide us service in sales, technical support and maintenance support wherever we had an office. Secondly, the system had to accommodate our



insurance proposal programs as well as generic types of programs such as word processing, file processing and spreadsheets. Finally, we wanted the computers to communicate with the mainframe here in Lincoln, and also to communicate with various insurance related time-share services.

## Meeting specified goals

"We started with those goals in mind to find a company that could meet our needs. Back in 1981, there weren't a lot of players in the microcomputer game. Radio Shack kept popping up as a possibility. We looked at some of the other companies, and they had some strong points, but the deciding factor was that they didn't have the nationwide sales and support staff that Radio Shack had. We wanted our agents to buy locally and establish a rapport with the local Computer Center. This was a new area for everybody. There was a lot to learn and we needed a lot of help."

In May of 1981, Security Mutual selected the TRS-80 Model II as the microcomputer for its agents. "We began equipping each of our offices—there were thirty-five to forty then—with a Model II, expansion drives and a Daisy Wheel II printer." Since purchasing the first Model IIs, the company has used a variety of Tandy computers in its agencies. According to Cerny, the introduction of the Tandy MS-DOS computers was a welcome addition to his company's computerization program. "We probably have more Tandy 1200s today than we have anything else, both floppy and hard drive versions," noted Cerny. "Now we're beginning to put Tandy 3000s in our larger agencies that need the power of AT-type processing plus the expansion capability for multi-tasking and networking in the future.

"When we first began, we needed good communications capability because we had all these insurance proposal systems already running on our mainframe," explained Cerny. "We didn't want to immediately have to rewrite them in BASIC or some other language to run on a microcomputer." Consequently, the company set up a communications system that allowed the microcomputers in the field to access the proposal generation software

on the mainframe. "When we bought the Model II, Radio Shack offered a package called BIS-3780 which would modify the communications port so that we could emulate an IBM 3780," Cerny said. The company's data processing department developed programs for the Model II that captured client data such as name, age, sex and desired coverage. The information was then transmitted to the mainframe via the communication system, the proposal would be generated and the report sent back to the agent.

## Talking to a micro

The system worked well, but as the company expanded, so did the expense of the company's communications link. By 1985, the phone bill for the communications link was totalling about \$120,000 annually, supporting about five hundred agents. "After three years, we began writing the mainframe programs in BASIC for the micros as a way to reduce the expense of the communications link," said Cerny. "Today, most of our proposal work is done on a stand-alone basis on the micros. The communications system is used for electronic mail which we call our SMLGRAM, and to access any information on an active policy, like determining the current cash value of a policy." By transferring proposal generation to microcomputers in the field, the company's phone bill is expected to be reduced to about \$30,000 for 1986.

The SMLGRAM electronic mail expedites communication between the home office and the agents. New product information, company memos and personal messages can be transmitted between Lincoln and any single agency, or, a single message can be sent to all agencies. Additionally, the SMLGRAM can be used between agencies in the field.

## Custom-tailored policies

Once an agency has been outfitted with the proposal generation software, it can calculate proposals quickly and efficiently for clients. When an agent makes a proposal, a program is utilized to take down all of the financial and personal information about the client. A printout is generated indicating if the present insurance coverage is adequate. If the coverage does not meet the client's requirements, the agent can calculate the amount of additional coverage necessary.

Once the desired coverage is established, the proposal generation software is utilized to determine the best insurance product to facilitate the coverage. If the proposed cost is more than the client wants to spend, changes can be made in various factors of the input without having to input all the data again. These changes can be made until a balance between cost and coverage is achieved.

"Without the power of the computer, you have to sort a proposal back and forth for several weeks," said Cerny. "Our goal is to get that accomplished in one sitting."

## Help for the harried

The company supplies its agents with the proposal generation software and helps them purchase their computer systems by giving them attractive interest rates and payment schedules. "The agents are not required to use Tandy computers, but if anyone calls us and asks us, we recommend a Tandy computer," Cerny said. "A lot of our people have had such good experience with Tandy, they don't want to deal with anybody else. They know the reliability of the equipment and the quality of the service. They also know that Radio Shack is going to be there next year, and the year after, right down the street, just like they always have been."

Of course, computerizing an insurance agency can be a harrowing experience for an agent that is uninitiated to computers. To help agents make the transition smoothly, Security Mutual Life established a help line for its agents. "A lot of times, the help desk doesn't solve problems; it acts as a central clearing house for problems," explained Cerny. "We try and answer as many questions as we can right here. If it's a sophisticated marketing concept, obviously we can't handle that one, so we route it to the people that can answer the question. Seldom do we have to call them back; our goal is to be able to help them while they are on the line."

Cerny is convinced that microcomputers have become an indispensable part of the company's agent's operations. "It's difficult to judge. About the only way to tell how much of a difference the computers make would be to take their computer away," grinned Cerny. "And obviously, we wouldn't want to do that."



by Richard A. Bilancia

When asked to write a review of the new Xenix system for the Tandy 3000 HD, I admit I was initially quite apprehensive—not because I dislike writing, but because I've had a Tandy 6000 (upgraded from a Model 16A) since the early days. Since May 1982, to be exact, and I've run XENIX/68000 on it since January 1983 and I didn't think that a 3000 could favorably compare with a 6000. Boy, was I wrong! I must say that I've been very pleasantly surprised with the speed, performance, features and functionality of the 3000 HD and Tandy's port of XENIX System V/286.



### First Impressions

While the system I used for review purposes already had XENIX installed on the hard disk, I chose to reload the software from the distribution floppies to see how complete the documentation and installation programs are. They are very complete and thorough!

The 3000 HD installation procedures allow the user to configure his primary hard disk into multiple partitions, to allow a portion of the primary hard disk to contain MS-DOS programs and data, and to do other system administrator tasks like modify the amount of disk swap space. These

# Xenix System V/286 and the Tandy 3000 HD: The pleasant surprise

functions can all be accomplished with a minimum of technical input or knowledge.

Printed documentation for XENIX is extensive. XENIX System V/286 for the Tandy 3000 HD comes with four PC-sized, 5 1/2-by 8 1/2-inch manuals: Installation, Operation, User's Guide; Reference Manual Volume 1; Visual Shell User's Guide; and DeskMate.

Five additional manuals come with the purchase of the optional XENIX System V/286 development software: Reference Manual Volume 2; Programmer's Guide; C Reference Manual; C Library and User's Guide; and the Macro Assembler User's Guide and Reference Manual. Most of the Reference Manual (both volumes 1 and 2) pages can be optionally loaded onto the hard disk for quick user terminal access.

After installing the system, I ran a few quick benchmarks. While no benchmark test can ever tell all things, the few simple benchmarks that I ran indicated that the 3000 HD ran on average approximately 30 percent faster than my Tandy 6000. Needless to say, I was impressed!

### Features

Most noticeable is the relatively small physical size of the Tandy 3000 HD. The Tandy 3000 HD only occupies about 2.75 cubic feet, over half of which is the oversized 14-inch CM-1 color monitor that is on my system. Also quickly apparent is the comparative quietness of the 3000 HD's one cooling fan.

No keyboard is perfect, but the 3000 HD keyboard has one of the nicest feels available. Unlike many other products, the Tandy 3000 HD keyboard does not require multiple key strokes for any of the standard UNIX shell characters.

The 3000 HD comes without any operating system (XENIX and MS-DOS are extra cost options), but if you buy both MS-DOS and XENIX System V/286, they can co-reside on a single hard disk and either operating system can be selected at boot time.



Living in a somewhat rural area, power fluctuations and short power outages are somewhat common. Accordingly, I often found that my computer systems had reset because of these power outages. When such resets occur, some computers will only fully reboot with operator assistance at the console. The Tandy 3000 HD does not require such operator involvement. The 3000 comes with a battery operated user-resettable internal clock and a boot track controlled timeout to automatically reload the kernel and go into multiuser mode. Of course programs executing during a crash may still create a problem with lost data, and for that reason I still recommend a battery power backup system like the Tandy BPS-400 Standby Power System.

Since each XENIX implementation will likely be unique, kernel modification for optimum performance becomes a desirable option. Accordingly, Tandy has provided users a way to re-configure the XENIX operating sys-

tem kernel of the Tandy 3000 HD with a configuration kit. Reconfiguration of the kernel is not something to be tried by the casual XENIX user, but when properly done by a knowledgeable administrator, can save considerable computer resources and maximize the value of a system.

Tandy 6000 owners will be jealous of the fact that the 3000 HD does not need to be shutdown to format floppy diskettes. Unlike the 6000, 3000 HD users can format floppy disks while other XENIX System V/286 programs are executing.

One of the real advantages of the Tandy 3000 HD is the hardware expansion options and upgrades available from Radio Shack and other sources. Some of the options available directly from Radio Shack include: the Tandy TCS-100 Tape Cartridge System that can hold 48 megabytes on a single backup cartridge; the external 10 megabyte Disk Cartridge System; additional random access memory boards and chips (up to 12 megabytes of RAM); a high resolution color graphics kit; serial port expansion boards; internal and external floppy and hard disk expansions; and of course, a wide selection of monitors, terminals, printers, modems, and many other accessories and supplies. Additionally, an internal 20-megabyte Disk Cartridge System and the 20+20 Disk Cartridge System will be supported later on.

## Application software

New computer hardware is generally available with only a promise that application software will eventually be available—such is not the case with XENIX and the Tandy 3000 HD. The following Tandy 3000 HD application software packages are already available directly from Radio Shack: RealWorld General Ledger, Payroll, Accounts Receivable, Accounts Payable, Order Entry and Sales Analysis; SCRIPSIT, Tandy's in-house developed word processing program; and Profile, Tandy's version of the Small Computer Company's database management system. Several other XENIX-based software packages are available through Radio Shack's Express Order Software program.

Additionally, I have experimented with several software packages developed for the IBM PC/AT XENIX port and for XENIX System V/286 from the

Santa Cruz Operation which seem to work flawlessly, true to the binary code compatibility promise of Microsoft, Inc. If the binary code compatibility between XENIX versions is 100 percent (as I suspect), then there is good reason to believe products like SCO-Professional (a Lotus 1-2-3 workalike), Lyrix word processing, and FoxBASE (a dBase workalike), all from Santa Cruz Operation, Inc., and hundreds of other software packages from other sources, should work on the Tandy 3000 HD.

## Window-like interfaces

Because no single interface can be all things to all users, and the fact that operating system user interfaces often determine the success or failure of computerized solutions for business problems, Radio Shack has provided their XENIX users with a choice of two superior user interfaces, Microsoft's Visual Shell and Tandy's exclusive multiuser DeskMate.

**“...it is the user interface to the XENIX utilities that is unique.”**

Microsoft's Visual Shell ("vsh") is an excellent user interface patterned after the user interface of Microsoft's successful spreadsheet, Multiplan, and word processing package, MS-Word. When using "vsh", the contents of the current working directory are displayed in the top window of the screen, and a set of commands are displayed on the bottom few lines of the screen. Files in the current directory are selected using the arrow keys, while commands (including Copy, Delete, Edit, Help, Mail, Name, Options, Print, Quit, Run, View, and Window) on the bottom of the screen are selected with the space bar, the backspace key, or the first letter of the command. Single keystroke commands allow the user to migrate up and down the directory structure. The system date and time are continuously displayed, and updated, in the lower right hand corner.

After considerable success with their MS-DOS DeskMate software that comes standard with Tandy IBM-compatibles, Radio Shack decided to include a comparable product with

their port of XENIX. I was pleasantly surprised to find this interface included with XENIX for their Tandy 3000.

While the DeskMate software includes spreadsheet, calendar, database, calculator, phone directory, and word processing programs, it is the user interface to the XENIX utilities that is unique. The date and time are displayed in the top right hand corner of the screen. A calendar for the current month is displayed on the top left of the screen, with any entries that have been entered to the calendar system for the current date displayed along side. Below that, the name of the current directory is displayed. Further below are six user definable boxes that contain the names of files accessible by the Text, Worksheet, Filer, Calendar, and Mail programs respectively. The last of these six boxes is labeled "APPLICATION" and contains a list of user accessible (and user customizable) application programs.

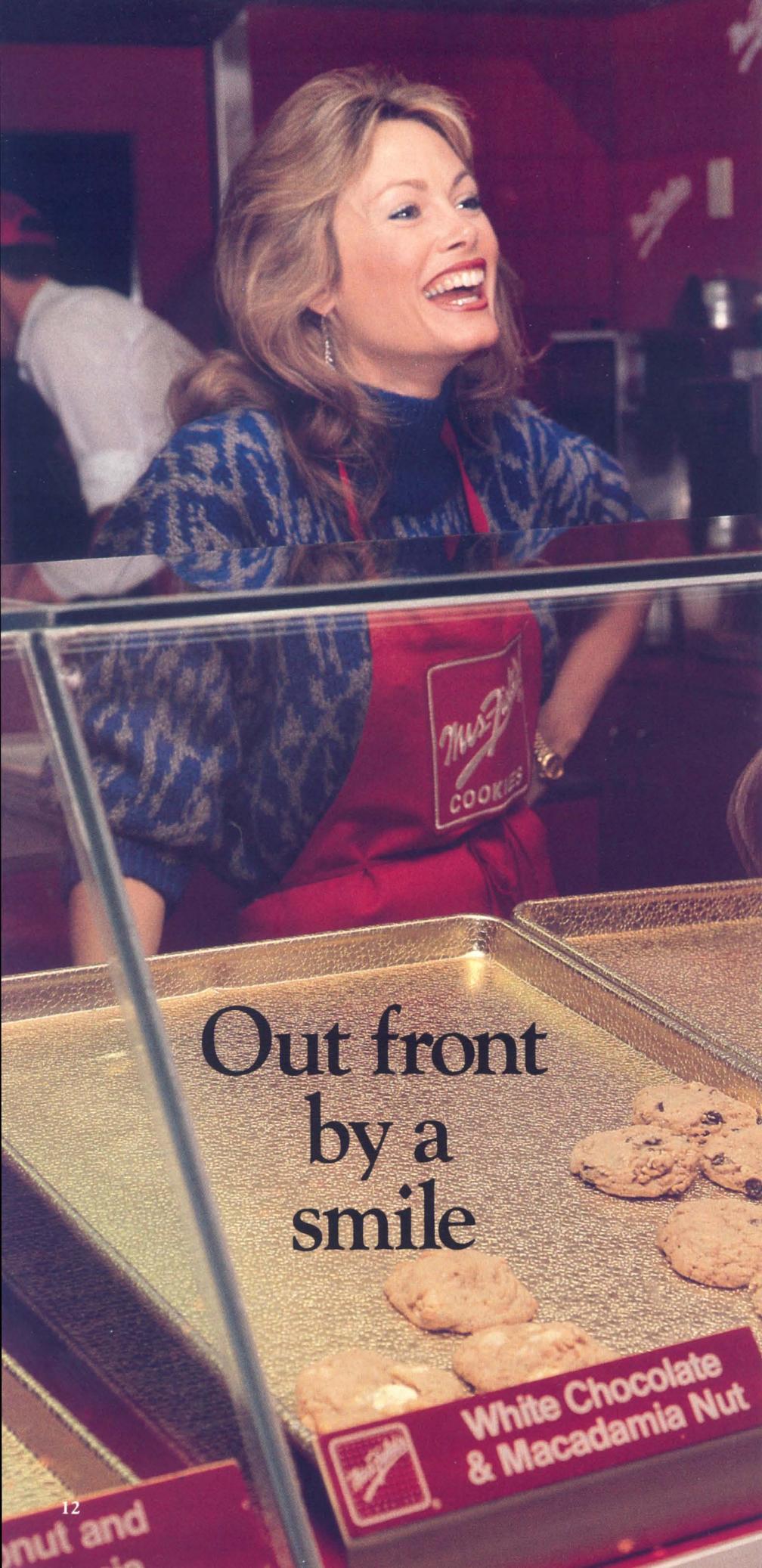
Application files are simply pointed to, and are then opened for modification with a single keystroke. Additionally included in this interface are options to call the following XENIX programs with "fill-in the blanks" options: mail, find, mv, chmod, rm, mkdir, cp, lpr, df, who, ps, and floppy disk backup and restoration options, as well as sub-shells. Within very well-defined limits, the user can tailor the interface to access the programs, files, and directories that he or she uses.

With tools like Microsoft's Visual Shell and Tandy's DeskMate, even novice users can learn to work quite effectively in the powerful XENIX System V/286 multiuser, multi-tasking environment.

## Conclusion

If you are planning to buy a XENIX machine soon, I'd say that you have an easy choice. One of the lowest initial cost alternatives is clearly the Tandy 3000 HD, and you still get a lot more opportunities for growth and expansion with the 3000 HD. You also get Tandy's "Clearly Superior" service and support.

*Rich Bilancia is an independent consultant specializing in UNIX and XENIX who writes a monthly column for UNIX/World from his home in Littleton, Colorado. One of his Unify-based applications, a hotel reservation and front desk system for the Mana Kai-Maui Hotel in Hawaii, was highlighted in "Computing in Paradise" published in the Summer 1986 issue of Answers. Bilancia is a member of Tangent.*



Compliments, encouragement and fresh cookies led to big business for Debbi Fields.

When Debbi Fields opened her first cookie store in August 1977, she had what she considered a very simple goal in mind—to make people smile by providing everyone with the freshest, warmest, chewiest cookies she knew how to make, and providing them with the most incredible service they had ever encountered.

No small undertaking for a 20-year-old housewife whose only market research was based on the compliments and encouragement she received from friends and her husband's business associates. Nevertheless, with \$50,000 she borrowed from her husband, Randy Fields, she purchased the needed equipment and opened Mrs. Fields Chocolate Chippery in an international foods arcade at Liddicoats in Palo Alto, California.

Sophisticated marketing surveys indicated that most people like chocolate chip cookies crisp and cool. Since Debbi decided to buck the trend and produce only warm and chewy cookies, it was no wonder her first day of business began as a disappointment. By noon, not a single cookie had sold. In an effort to get people to try her warm and chewy delights, she piled a tray high with cookies and began walking up and down the street inviting everyone to try a cookie. The free samples worked as she began to recognize people who returned to the store—this time to buy.

Perhaps one of the things which sets Mrs. Fields apart from others in the same type of business is Debbi's philosophy, "Good enough, never is."

"We are always looking at how we can make it better," she said. "The only thing which never changes is the cookie recipe. After all, a standard is a standard."

"Integrity is everything," she continued. "I am as zealous today about product quality as I was nine years ago. I truly believe that it's the customer which drives our business and you just can't compromise quality of service or product along the way."

Her husband, Randy, who now acts as chairman of the board and chief financial officer, echoes her sentiment. "The basic cookie recipe is the only thing which represents perfection in

## Out front by a smile

White Chocolate  
& Macadamia Nut

the company. Every other aspect of our business is in the process of trying to reach perfection."

### Perfection, please

Debbi is a perfectionist and insists that customers have a proper "Mrs. Fields experience" with every bite no matter where the cookie was purchased. One of the standards for a Mrs. Fields cookie is that it must be fresh. Any cookie not sold within two hours is donated to charity. "This isn't because the cookie will self-destruct or isn't any good after two hours," she said. "It's just that we simply want a quality product and part of producing a quality product is providing a fresh, warm cookie."

She is also known for making surprise visits to her stores not only to check on quality, but to meet the staff and pitch in if need be. It's not unusual for her to walk into a store, don an apron and hat and start mixing dough or waiting on customers.

Although she is president of an international corporation, Debbi Fields is unpretentious and will never hesitate to say that if not for the people around her, Mrs. Fields would be a single store in Palo Alto. "All I ever wanted was one store. The only reason we decided to expand was because of our people who came to me wanting more opportunity. It's those people and those like them that keep me running today."

She is a strong believer of promoting from within, saying that once a person has worked in a store they are more sensitive to the needs of those in the field. In fact, every vice president was once a sales manager and everyone who works in the corporate offices, now located in Park City, Utah, works in a store before starting their job.

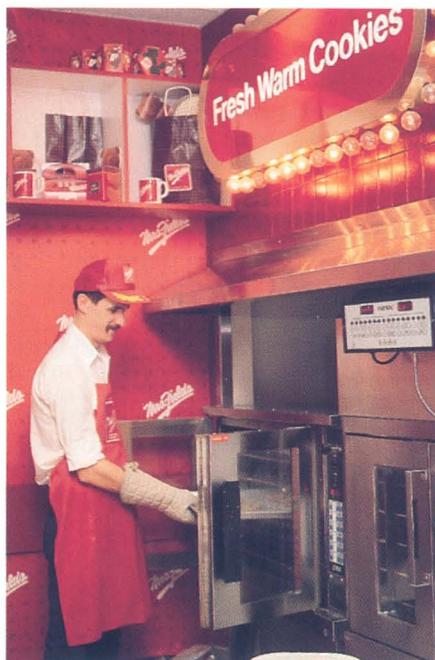
To say the company has grown could be considered an understatement. In just nine short years, Mrs. Fields has expanded into an international operation with more than 300 stores in 25 states with locations in Japan, Hong Kong, England, Canada and Australia. At the beginning of the 1987 fiscal year, the company had opened 140 new stores.

Gross annual sales have grown from \$30 million in 1983 to more than \$70 million in 1985. Mrs. Fields also owns approximately 80 Famous Chocolate Chippery stores, which are mostly located on the east coast and are in the

process of being renamed Jessica's Cookies, after Debbi and Randy's oldest daughter.

Randy Fields estimates that within five years Mrs. Fields will grow 300 percent. That translates to more than 1,300 stores worldwide if the company continues at its present growth rate.

Not only has the company grown in numbers, but its product line has also expanded. There are eleven types of cookies ranging from milk chocolate with or without walnuts to such eclectic delights as White Chunk (white chocolate and macadamia nuts). There are also five types of brownies with muffins as the latest addition to the product line.



*The emphasis at Mrs. Fields is always "fresh from the oven".*

### Dough control

Nothing is automated when it comes to producing the Mrs. Fields product. Staff in each store actually mix the cookie dough, "drop" the dough onto cookie sheets and bake the cookies. The basic recipe uses real butter and real chocolate, specially formulated for Mrs. Fields. The company also uses about eight percent of the world's macadamia nuts.

A company doesn't grow at the rate Mrs. Fields has grown without some control over their inventory and finances. All stores are company-owned. Both Debbi and Randy feel the only way to maintain the standard of quality which is expected is to be involved 100 percent in the operation.

"In order to grow at the rate we have been, it's necessary to maintain a tight control over the business," Randy explained. "Computerization of the operation was never an option," he added, "it was always a necessity."

Since opening the second store, the company has had a sophisticated management information system (MIS), thanks to the expertise of husband, Randy. Much of the company's success can be attributed to its ability to retrieve and disseminate financial information on each store, every day.

"No store is more than 12 hours out of date," Randy explained. "We know the next day if a deposit hasn't been made or if there has been a loss of inventory. Cash information and customer information is really the same. If you lose control of the store financially, then you also lose the customer. Since you can't do a daily customer survey, the next best thing is to keep tabs on how the business is doing in terms of sales and performance."

When the company first computerized its operation, a system utilizing touch tone phones was used. Each store would call into the mainframe in Park City, and punch in the numbers they were reporting on the phone.

According to Randy, the system was very time-consuming and expensive with an average connect time per store of seven minutes. As the operation grew and the need to maintain even tighter controls increased, the company began looking for an economical machine to place in the field.

Paul Quinn, manager of data processing at Mrs. Fields, says the company looked at several machines, including the Radio Shack Model 100. "When the Tandy 1000 broke the \$1,000 mark, that's when we decided that it was cost-justifiable to put a micro in every store."

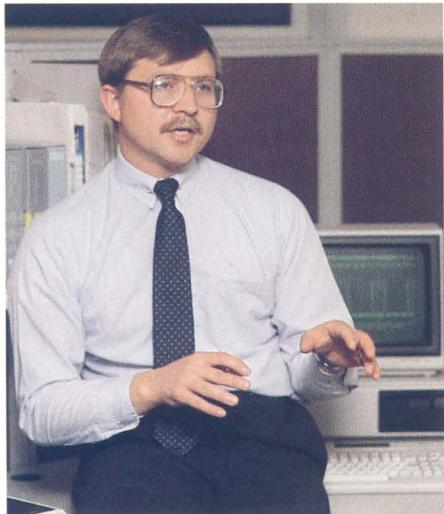
In making their final decision, both Quinn and Randy say two main criteria were used in evaluating each vendor—PC compatibility and ability to provide service for every micro in every store.

The service aspect was very important to the people at Mrs. Fields from the standpoint that they could not afford to send a computer to some remote service center for repair. They needed someone who could provide them with immediate service whenever and wherever needed. "The major reason we went with Tandy,"

explained Quinn, "was the service issue. Everywhere we are, they are."

A Tandy 1000HD with 256K memory and a 1200 baud internal modem can be found in virtually every Mrs. Fields Cookies store. The daily report program was developed in-house by Paul Quinn and his staff with help from Radio Shack's own Store Operating System (SOS) personnel. "Radio Shack's SOS people were very good in helping us develop our daily report program," Quinn explained.

It's one thing to develop an accounting program for people who are familiar with computers; it's another to develop one for people who have never touched a computer. Randy explained the idea behind the software development was to create something that didn't require a user's manual. "It had to be not only user friendly, but user sensible as well," he added.



Paul Quinn explains the company's sophisticated reporting system.

### Practical procedure

If the reaction from the field is any indication, then Quinn and Company have been very successful in developing a user friendly/user sensible package. At the end of each business day, the store manager inputs the daily report information. The program begins by asking for the sales date. An introduction screen then comes up listing new sales targets or hours of operation with a six to eight line message from Debbi. This screen is replaced weekly from company headquarters.

The manager then begins data input on the Tandy 1000 HD. The input is divided into eight categories—inventory transfer, additions (inventory received), weekly inventory on

hand, staff accounting (total hours spent in store), batch accounting (how many of each item produced), product accounting (how many of each item given away or was substandard), daily cash sheet, and weekly payroll. When finished, the manager simply presses a key. The program formats the data and places the phone call to Park City. All the information is checked for errors, then accepted by a microcomputer which acts as a front-end processor. The data is then sent real time to the company's mainframe.

According to Quinn, the information transfer takes about thirty seconds, compared to the seven minutes it used to take using the touch tone phone method. "We have practically paid for our lease of the machines through our savings in phone service alone," he said.

When the program was first implemented on Tandy 1000s, all Mrs. Fields' district managers were brought to Park City for one day of training. "We set up 50 machines each with a set of instructions, and had them work through the instructions," Quinn explained. "When they returned home, they trained their individual store managers."

Morning operations at company headquarters begin at 3 a.m. by making sure all data has been posted by all stores. Management reports are then generated by region around the country. Reports are then set up for distribution both internally and for the field.

All district managers have a portable printer, which they can hook up to their Tandy 1000. To receive information on the previous day's report, they insert a management diskette and call up the mainframe.

The daily report program has proven so successful, Mrs. Fields plans to offer their software, based on third party referrals, sometime next year.

To further reduce paperwork, a daily planner program is being installed in all Mrs. Fields stores. "The purpose of the daily planner is to help managers run their store more efficiently hour by hour," said Quinn.

According to Randy, a store should never be out of product; otherwise, it is losing sales. The daily planner is an effort to keep stores well stocked in warm, chewy confections. It helps managers determine how much dough to mix, and when and how many cook-

ies should be dropped to meet the expected customer traffic.

After following a simple set of instructions on how to load the daily planner onto their hard drive, the manager makes a "model" day for each day of business based on standards established by the company.

The daily planner will also calculate "what ifs," said Quinn. For instance, if there is unusually heavy traffic, the employee can adjust the customer count and the program will dynamically adjust the mixing and dropping schedule and total sales if customer traffic continues at the given rate.

"We have been using a daily planning report which is done on paper," Quinn said. "However, it is very labor intensive. This computerized version is an effort to replace that."



Sally White, director of marketing and promotions, checks daily sales figures.

Quinn and his data processing staff are also working on a staffing program that will provide the manager with a personnel schedule of his staff. According to Randy, the company has reduced employees' paperwork by half. Their goal is to eventually reduce it by 80 to 90 percent.

Randy's theory closely resembles an application for artificial intelligence in that people should be with people. "Our company is customer-driven. If you have people who want to be with people, then you have to take the administrative work off their back. It's too much to ask someone to spend 5 hours doing paperwork in addition to their people-related functions."

With success forecasted for the future, Mrs. Fields is definitely cashing in the (chocolate) chips.

## THE TEXAS COMMERCE BANK REAL YIELD COMPUTER DEAL

### Banking on the future

A free Tandy 1000 EX just for putting your money to work? That's "The Real Yield Computer Deal" that Texas Commerce Bank of Fort Worth, Texas made to depositors in October, 1986. Judging by the response the promotion generated, the bank's offer was one that depositors found hard to resist. By depositing as little as \$4000 in a certificate of deposit, the bank's customers received a certificate good for a complete Tandy 1000 EX system at any Radio Shack Computer Center.

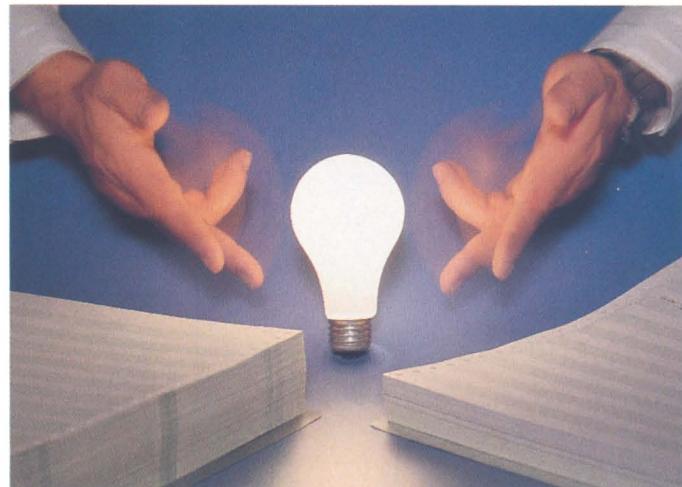
"We structured the promotion so they get everything they need," said Bob Jung, chairman and CEO of Texas Commerce Bank—Fort Worth. "They got a color monitor, the disk drive, the CPU, software, blank diskettes and even the monitor platform—and the bank paid the sales tax. The customers walked out of the store with a quality premium without ever reaching into their pockets."

This promotion marked the first time that the bank has offered a premium to attract deposits. "Our competitors have offered everything from toasters to new cars in order to attract deposits," reported Jung. Instead of offering a variety of premiums that increased in value with the size of the deposit, Texas Commerce Bank offered one premium and adjusted the term depending on the size of the deposit.

"The reason we picked one quality product is because one of our main target markets is professional executives. These people are looking for quality products," said Jung. "The Tandy 1000 EX is a quality product with all the features you would want in a computer. We felt it would be appealing to professional executives."

Another reason why Texas Commerce Bank selected Tandy computers as a premium item might be that they have had good luck with their own Tandy computer systems that include both Tandy 1200s and Tandy 3000s. Back in 1985, they began an office automation drive that some might call out of the ordinary. Instead of designing applications and then purchasing hardware, they purchased computers, put them in different areas of the bank and let their employees become familiar with them.

"It worked like a charm," reported Jung. "Once the employees became familiar with the computers they began to come up with applications themselves and we would get the templates for them. We have really been pleased with the acquisition of the computers."



### That's the idea

Managing ideas. What a novel . . . idea. That's just what American Idea Management Corporation (AIM) does. Founded three years ago, the firm represents individual and corporate clients screening hundreds of inventions each year which run the gamut from toys and games to high technology electronic devices for home and industrial use. The company offers inventors a wide range of services, including patent development, research, marketing and licensing, and AIM represents its clients to manufacturers.

All these tasks involve heavy duty word processing. According to Jim Eagan, computer operations manager, the company needed a system that would provide multiple user capability and direct computer-to-computer communications between the Pittsburgh, Pennsylvania facility and the corporate headquarters in Reading, Massachusetts. Said Eagan, "I tried to talk to other big companies, but they didn't want to talk to me. They wanted to talk hundreds of thousands of dollars. We went to Tandy and they were totally responsive to our needs."

Today, American Idea Management uses four Tandy 6000 multiuser systems, two in Pittsburgh and two in Reading, each with hard drive storage capacity and an assortment of Tandy terminals and printers. Modem communications allow the two offices to interface not only with each other but also with clients and subscription data bases used in research.

Eagan noted "without a word of exaggeration" that the Tandy systems have increased productivity 150 to 200 percent. Lex68 is the heart of the company's word processing functions, permitting them to rapidly and efficiently service their client's requirements. The computer systems are utilized for the storage, retrieval and processing of the majority of the company's accounting, legal, contract and client information. Quipped Eagan, "You could say we're a 'Tandy' corporation."

Are you using your Tandy/Radio Shack computer in an interesting manner? We'd like to hear about it. Just send us a brief description of your application, including the software and model number of the computer you're using. If we select your application for possible inclusion in our Techniques, Etc. column, we'll contact you—so be sure to include your address and phone number. Letters sent become the property of the magazine. Sorry, we can't return any letters received (so don't include diskettes, photos, etc.). Address letters to: Techniques, Etc., Answers Magazine, 300 One Tandy Center, Fort Worth, Texas 76102.

# Supplying the demands of dentistry

**Networking helps a Minnesota-based dental supplier improve distribution and reduce back orders.**

It might be a drill bit or a dental chair, cotton swabs or an x-ray system. But whatever it is, a dentist can't afford to wait for it to be shipped.

No one knows that better than Peter Frechette, president of Patterson Dental Company. With nearly 1000 employees, Patterson Dental is the second largest dental supply company in the United States. The company ships more than 25,000 different products to more than 60,000 dentists from eighty sales offices in twenty-six states. With such a complex distribution system, getting the item to the dentist can be difficult; shipping it to the dentist on the same day it is ordered is a monumental challenge.

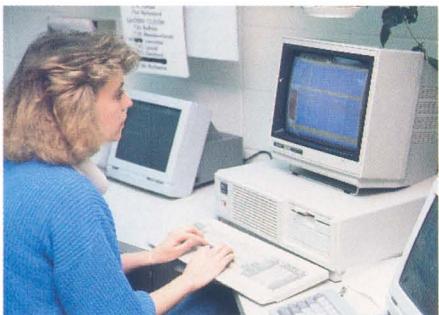
When Patterson Dental succeeds at this challenge, and it does most of the time, dentists will order products from the company again and again. The secret to Patterson Dental's success is a communications network that allows for communication, company-wide. Communications networks aren't new to the distribution industry, but they are new to the dental industry, Frechette explained. "The network helps us provide better customer service because we can fill more orders more quickly, increase our inventory turnover and increase our market share," he continued.

Patterson Dental's network operates from distribution hubs in locations such as Seattle, Washington; Los Angeles, California; Houston, Texas; Chicago, Illinois; Chattanooga, Tennessee; and the company's headquarters in Bloomington, Minnesota, a suburb of Minneapolis. Each hub coordinates the distribution of Patterson Dental's vast array of products stored in twenty major distribution centers and twenty satellite stock locations.

**Guenther Thän, vice president for Management Information Systems, directed the development of Patterson Dental's communication network.**

## Distribution solution

Although, today, the network seems like second nature, it had to be designed from the bottom up. The design process started in April, 1984 when a young German-born American named Guenther Thän (pronounced "tawn") was hired as vice president for management information systems. To Frechette, Thän's role in the organization is pivotal. "If Guenther comes up with the tools, I back him." Thän and his staff have consistently solved Patterson Dental's distribution problems. A prominent part of the network solution has been Tandy computers. Today the company's distribution network is



Computer operator Sandy George uses a Tandy 3000 to transmit information to the company's regional hubs.

controlled by about two dozen Tandy 3000 and Tandy 1200 hard disk-based computers.

Thän related that he chose Tandy computers for a very good reason: Tandy uses a network for its own Radio Shack store operating system that is very similar to the system that Patterson Dental wanted to install. "Tandy has regional warehouses serving over 7,000 locations, and they have support staff at regional levels," Thän noted. "I went to see the district manager in Minneapolis, and, as soon as he realized the scope of our project, he took me to Fort Worth to meet with Tandy's manager of national accounts," Thän recalled. "We were privy to how they set up and worked with their own network—they shared the system with us so we didn't have to repeat errors."

"One of the nice things about Tandy is that we didn't have to be a corporate giant to receive the same service and help that a large company usually commands," said Thän.

### Speed is the key

Thän explained how the system operates by using an example of a dental assistant in Boise, Idaho, who needed a

specific product that was unavailable in the local stocking location. After placing an order with a Boise customer representative, the order is entered on the local office's microcomputer and is transmitted to the Seattle hub, the one closest to Boise.

If the item was available in Seattle, it would be shipped to Idaho on the same day. If it wasn't stocked in Seattle, the communications system automatically queries other stocking locations in the Seattle regional hub. If the product was located in Portland, Oregon, for example, the Seattle hub would execute the order through the network and have it shipped from Portland to Boise the same day.

The beauty of the system is that distribution has become a simple task, Thän observed. In the past, if a distribution location didn't have a particular product, the local office would place an order with the manufacturer, wait two or three weeks for the order to arrive and then they'd ship it to the customer. Today, inventory at other locations is checked before orders are placed to manufacturers.

"What we've done is decentralize the sales and marketing function at the same time as we have centralized distribution at regional levels," Thän said. "It's easier to move information than it is to move people and stock".

### Filling the order

By using the system, Patterson Dental's service level has increased from 80 percent to 92 percent. "This means that, instead of being able to ship on

average eight of every ten items ordered out of immediate stock, we are now able to immediately ship more than nine out of ten orders complete," Thän reported. Another measure of success is inventory turnover, which has increased from about four times to almost six times annually. What all this means is that Patterson Dental can promptly fill more customer orders and, at the same time, keep its inventory at an optimal level to improve the company's overall cash flow position.

Tandy's help came not only in the form of design support, but also from the ability of the hardware to run an off-the-shelf software package, Cross Talk, that easily handles file transfers between the systems in the network and Patterson Dental's central computer system. The computers in the regional hubs will transmit, through the use of a modem, stocking, demand and equipment availability to the central computer in Bloomington. In return the central computer will transmit to the regional hubs a variety of reports such as product demand and ordering information.

Now that the objective of shipping product the same day as ordered has been achieved, Patterson Dental plans to augment the communications system. Thän wants to integrate the dentist and the manufacturer into the system through personal computers and remote terminals installed at their offices. Whenever these new network heights are scaled, Thän is sure that Tandy will be with Patterson Dental every step of the way.

## Portable sales force



Janeen Murgic, network support, checks sales figures on a Model 100.

When not improving Patterson Dental's distribution network, Guenther Thän's MIS staff is help-

ing the sales force close more deals. Thän developed a financial analysis software system that sales personnel run on the company's Radio Shack Model 100 portable computers. Basically, the program is a cost/benefit analysis that demonstrates to the dentist the cost effectiveness of the new equipment purchased from Patterson Dental.

Because such equipment can be very expensive, sales people overcome customer resistance by using the Model 100s for on-the-spot calculation of the improved cash flow the dental practice will achieve by upgrading their equipment. These projections, which include a comprehensive cost analysis, are generally calculated on a three year basis.



# Education with a personal touch

**A local school district goes beyond computer literacy and creates a system-wide learning program.**



*Rex McBarnes has helped the computer literacy program expand throughout the school system.*

Prince George County, located about 35 miles south of Richmond, Virginia, is a suburban community whose backyards were once Civil War battlefields. While Civil War buffs still scout the environs soaking up history, the county's citizens—at least those involved with educating the community's 5,000 students—are much more in step with the computer age. Computer awareness has become a state of mind in the school system.

Part of the interest in computers has been propelled by the state of Virginia's mandate to have every teacher and student in the public school system become computer literate. Some of the interest has exuded from the light industry that populates the area. By far the largest employer in the area is the U.S. Army Post of Fort Lee, which houses several of the Army's worldwide logistic, support and training agencies including computer sciences. Some 40 percent of the students in the school system have parents who are military personnel or civilians employed at Fort Lee.

But Rex McBarnes is really the catalyst in the school system when it comes to carrying out the computer literacy

mandate. McBarnes, a friendly, stocky man with a well-groomed flat-top, is the school system's director of computer services. During a typical day, McBarnes visits many of the community's ten schools where he appears to be known by virtually everyone.

The school system's introduction to computers began in 1978 when McBarnes, who, at the time, was head of the Mathematics Department in the high school, decided to teach a BASIC programming course. "I was getting feedback from students who had graduated and gone on to college. They felt they were at a disadvantage because they were competing with students from larger high schools who had taken computer courses," he reported.

## One computer, too many students

The first group of students flocked to use the single TRS-80 Model I, often coming in before dawn to use the system. Later, when the school system needed to acquire more systems, McBarnes briefly evaluated Apple computer systems but quickly decided to continue purchasing from Tandy. "The determining factor was service. Not

only is the service good but the people at Radio Shack are easy to work with."

The Prince George County school system is continually adding to its inventory of Tandy computers, which recently totaled 150 Color Computers, three Model Is, thirty-five Model IIIs, twenty-five Model 4s, thirty-five Tandy 1000s, two Tandy 1200s, three Tandy 2000s and a Model 16 multiuser system which is used by the high school's administrative offices. McBarnes also has acquired an extensive library of software including both industry standard software such as PFS:Write and MultiPlan and other software designed specifically for or adapted to Tandy computers.



*Students learn BASIC and PASCAL using Tandy 1000s and Radio Shack Model 4s in the high school computer lab.*

Starting at the grammar school level, students use the Color Computers to receive instruction in computer literacy, including computer principles, the history of computers, potential careers, how to upload and download programs and how to use simple programs. The culmination of the computer literacy program occurs in the seventh grade when students receive a three week block of largely hands-on instruction as part of a required math course.

This gradual introduction to computing gives the students a good foundation once they reach high school where there are two major avenues of computer study—computer science and vocational applications. About fifty percent of the high school students elect to take one or more computer courses, McBarnes said, adding that academically the school system is considered one of the most progressive in the state.

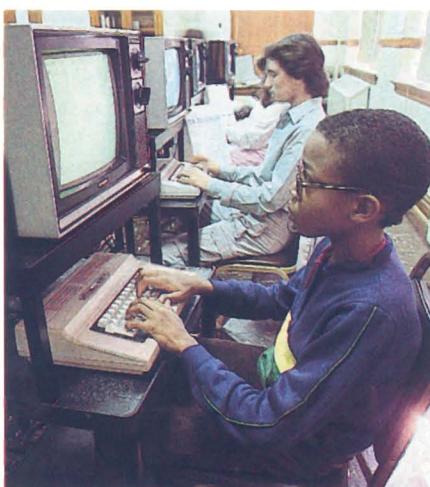
### **Preparing for the future**

The computer science curriculum provides an in-depth instruction in programming language skills. Students learn BASIC and PASCAL languages in the computer lab, which is

outfitted with a mixture of Tandy 1000s and Radio Shack Model 4s. Lately, computer science has become so popular that McBarnes is moving the BASIC programming course to the ninth grade level to free up students at the higher grades to take more PASCAL programming and other higher level languages to better prepare them for college level computer courses.

By far, vocational training encompasses the largest part of computer instruction at the high school level. "People today will find it very difficult to get a job in an office environment unless they've got training in word processing," McBarnes said. Prince George County is making sure its students have plenty of training in office skills. All students in the secretarial skills program take a semester of keyboarding, a semester of computer concepts and a full year of business computer applications. These applications, all taught on Tandy 1000s, include instruction in DeskMate, PFS:Write, MultiPlan and other popular business programs.

An important part of the computer program is making students comfortable with MS-DOS. "The sixth graders love the animated MS-DOS Fundamentals program from Tandy. Once you've got students exposed to MS-DOS, that's half the battle," McBarnes emphasized.



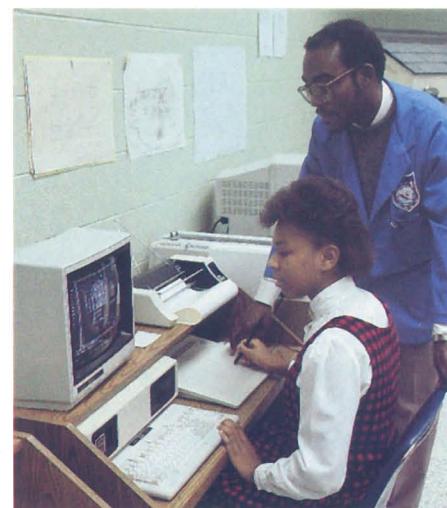
*Students learn the basics of computing using Color Computers.*

Prince George County recently expanded its vocational training program by participating in a computer-aided design pilot project for the state to teach computer-aided design as a part of the mechanical drawing curriculum. Again, Tandy was the computer of

choice—this time the Tandy 2000 running VersaCAD. The school system borrowed the first Tandy 2000 and related peripherals and later bought a total of three Tandy 2000 systems. The high school offers five classes per day in mechanical drawing. "At first, the students are a little in awe of the computer, but once they use it, they love it," McBarnes said. "This could really spread out to be a good-sized operation," he added.

### **Beyond computer science**

Perhaps because computers are such an everyday part of the school's environment, the administration, teachers and students are always looking for new uses for the systems. McBarnes is keen on finding ways to integrate usage of computers with English classes, particularly for term



*Computer-aided design merges computers with mechanical drawing.*

paper writing. One course of action under consideration is having students write their papers using word processing software after which it would be critiqued by a teacher. Students would then input necessary changes before handing in the final version. With a tedious manual system, students would normally be unwilling to make so many changes. "With this method, the students learn how to use the technology and produce a better piece of work than they normally would," McBarnes observed.

McBarnes continues to explore areas where computers could help enhance the curriculum. In fact, it often seems difficult to keep him away from the Tandy systems. But with results like Prince George County schools have achieved, who would want to?

# System solutions at your service



**Barry Chapman (standing), director of information systems, performs analysis for computer-aided logistic support with Ron Flax (left), assistant director, and Greg Foltz, systems analyst.**

**When the client requires a total solution turnkey system, the job goes beyond merely providing quality and value.**

The federal government is the largest single employer in the United States. Even with all that manpower to draw from, the government is just like any other business: sometimes it is more cost-effective to have an outside vendor provide goods and services than it is to produce them internally. Therefore, the Washington D.C. area has a large number of companies who do work for the federal government as contractors or consultants.

One such company is VSE Corporation, a nationwide engineering, development, testing and management services company serving both government and industry. Headquartered in Alexandria, Virginia, VSE was originally founded by President John Toomey in 1959 to do value engineering work, primarily for the government. Value engineering involves using numerous engineering tech-

niques to help reduce the cost and improve the quality of equipment. Today, VSE employs 2,200 people around the country and has expanded its operations to include the design of turnkey office automation systems. Under the leadership of Senior Vice President Marcy Pichel, these automated systems are just one facet of the responsibilities of VSE's Configuration Management/Integrated Logistics Support (CM/ILS) regional office based in Arlington, Virginia.

## Naval strategy

According to Barry N. Chapman, VSE's Director of Information Systems for CM/ILS, VSE's CM/ILS group has been tasked by the U.S. Navy's Naval Sea Systems Command (NAVSEA) to develop a total office automation system for selected logistic groups. NAVSEA is responsible for specifying and procuring everything necessary for U.S. Navy seagoing vessels including the ships and submarines themselves. Components of the automation program VSE is currently developing include an automated pro-

cess for acquiring data within the Defense Department and for establishing standards for graphics and data base design, ultimately enabling the Defense Department computers to communicate with each other.

Chapman, an electrical engineer with a strong computer background, explained VSE's approach to developing systems. "What we try to do is analyze the customer's total requirements and look at all the available technology," he said. "We then design a system, procure the equipment and install the system." Another factor determining the selection of equipment is compatibility. "We have to make sure the new equipment we install will interface with the customer's existing equipment," Chapman stressed.

## Systematic approach

Chapman and his team have developed a standardized "building block" approach to office automation. "We choose an approach based first on operating systems rather than on specific vendors in order to maintain flexibility and expandability," Chapman ex-

plained. "Then we look for the vendors that best fit our approach."

The primary "building blocks" of the typical VSE office automation system are single user personal computers utilizing MS-DOS. These computers are connected to multiuser systems running UNIX. Tandy computers have proved to be an important part of this approach. "We found Tandy equipment to be the best value in terms of cost, support, repair turn around, quality assurance and reliability," Chapman remarked. "And Tandy's compatibility and ability to run all the major industry-standard software is an excellent plus."

The system designed for NAVSEA currently consists of twelve Tandy 3000s that highlight their flexibility by allowing engineering functions, such as high resolution graphics in the single user mode, while providing the ability to easily interface with the multiuser UNIX system. As Chapman explained, "The Tandy 3000s at NAVSEA have a WorkNet card that allows them to connect to the multiuser UNIX supermicro via a high-speed communications port. Anyone using a Tandy 3000 can operate in MS-DOS and store files on the UNIX machine in an MS-DOS partition so that all users on the system—up to 64—have access to those files." According to Chapman, the ability to use cards such as WorkNet is impressive. "Tandy's compatibility is excellent," he said. "You can mix and match peripherals on the Tandy—and we have—and everything works just great."

Although the Navy buys equipment through the General Services Administration, Radio Shack has a GSA contract that allows delivery of products through local Computer Centers. All the computers used at NAVSEA were purchased from the Radio Shack Computer Center in Crystal City, Virginia, which also provided initial training and technical support to VSE, who in turn trained users at NAVSEA. "We have automated users at all levels at NAVSEA," said Chapman. "Secretaries are doing word processing and using electronic mail and graphics; support engineers are using spreadsheets and computer-aided design; and managers are using electronic mail and calendar features."

Each Tandy 3000 installed at NAVSEA is equipped with 2.6 megabytes of random access memory, a math co-

processor (for faster calculations), a 20 megabyte hard disk drive, a high resolution graphics display and is outfitted with various printed circuit boards that improve system performance. These systems run office automation tasks as well as spreadsheets, graphics and computer-aided design functions, with popular software. "The packages in use include Lotus 1-2-3, dBase III, AutoCAD, MultiMate, Gem Draw and Time Line," said Chapman. "This ability to run industry-standard software was an important criteria that NAVSEA specified."

### Benchmark analysis

Before choosing the Tandy systems, Chapman and his group analyzed more than a dozen competitive machines on the basis of published benchmarks (for speed and performance) and hands-on evaluation. "When you do a quantitative analysis of a machine, you get tied up with numbers," said Chapman. "We are interested not only in how fast the machine is and what the mean time between failure is, but also in support, training availability and responsiveness to customer needs. These are things that can't be measured with just pure numbers."

VSE uses Tandy 3000s and multiuser Tandy 6000s in its own offices. Presently, VSE is using a 9-track tape drive connected to a Tandy 3000 to download data directly from the mainframe computer tape. Once the data is downloaded, it can be manipulated locally and then written back to the tape

so it can be uploaded back to the mainframe. "The Tandy 3000 is a single user computer that is really part of a complete communications bridge from single to multiuser to mainframe and back," Chapman observed. VSE is also planning to use the 3000s in computer-aided design and desktop publishing applications and to develop artificial intelligence-based expert systems to aid in developing computer applications for logistics support.

VSE uses Tandy 6000s to port XENIX applications that will be used on NAVSEA's multiuser system. One design that VSE has developed for in-house use on the Tandy 6000, also installed for NAVSEA, is an electronic mail function. This system automatically dials up MCI Mail several times a day, checks the electronic mailboxes and downloads any messages. It then routes messages to the appropriate parties, along with any interoffice electronic memos. The electronic mail function helps NAVSEA Headquarters, field and Fleet staff members communicate more effectively. Through the use of portable Tandy 200s, messages can be sent and received through the electronic mail function. According to Chapman, NAVSEA also uses the Tandy 200s for quick note taking and calculations when away from headquarters.

Of Tandy's role in helping the Navy become more efficient, Chapman said, "The office automation game is really a big puzzle, and Tandy is a major part of the solution to the puzzle. Tandy really opens the door."



Pat McNeelge, VSE CM/ILS group system programmer, uses the Tandy 6000 to monitor electronic mail transfer systems.

# Shifting into high tech



**Free-wheeling students hit the road with the Max/Drive Simulator System in Naperville, Illinois.**

## In the middle of the oil crunch, there's at least one business in Oklahoma that's thriving.

Tulsa, once known as the "Oil Capital of the World," is the home of Simulator Systems International (SSI). While many companies in Tulsa are experiencing a slowdown due to events in the oil industry, SSI is on the move.

Established in 1974, SSI is a manufacturer of automobile simulators for use in driver education, marketing their systems primarily to school systems and state highway departments. A truly international company, they have installed systems around the world, in countries as far away as Syria and Saudi Arabia.

In the driver's seat at SSI is Gerald Eaton, vice president and operations manager. An electrical engineer with 20 years of navy experience, Eaton designed the Max/Drive System utilizing microcomputer technology to give teachers and students one of the most

advanced driving simulator systems "on the road" today.

For years, driving simulators were not advanced enough to be reliable measures of a student's performance. According to Eaton, a student could pass a driving test simply by holding the simulator's brake and accelerator down at the same time, while keeping the steering wheel turned to the left.

Instructors monitored the students performance with a console that used blinking lights to indicate errors, but that could not show what kind of mistakes were being made. Only a few skills could be checked at any one time. As a result, it was difficult to know exactly what kind of help a particular student might need.

### New design

Eaton realized early on that microcomputers could give SSI's simulators the edge that they needed to bring precision to their systems and to distance the company from the old simulators on the market. He also realized that the transition would have to meet

with customer approval and acceptance. In August 1984, Eaton set to work researching microcomputers and working with programmers to develop a computerized system. After some 18 months of development, the prototype for the microcomputer-based Max/Drive System emerged as a total class management system for driver education instructors.



**Gerald Eaton is the man behind the Max/Drive System.**

At the heart of the Max/Drive System is the Tandy 2000 microcomputer—although as Eaton exclaimed, "You probably wouldn't recognize it!" SSI removes all of the 2000's internal components, then houses them in a sturdy metal case that stands over five feet tall. As Eaton indicated, however, the change is only a cosmetic one. "We don't alter the computer in any way, other than putting it in a different case." Eaton noted this procedure gives SSI a strong selling point: "With off the shelf software packages available at their local Radio Shack, our clients can use their Tandy 2000 for applications other than driver simulation."



*The Tandy 2000 (notice keyboard) is the heart of the Max/Drive Manager.*

The customized case provides a functional workstation as well. Locking metal doors guard the computer, monitor and supplies against theft or vandalism when not in use (an important concern for schools), while the top of the case doubles as a projector stand. Underneath the computer, a cabinet provides storage space for the more than twenty driver education films that SSI markets with the system.

Up to 32 simulators can be interfaced with the Max/Drive console. SSI builds these simulators and equips each one with all the controls of a real car—accelerator, brake, steering wheel, turn signals and gear shifter. SSI even uses genuine car seats to make the simulator as realistic as possible. The computer monitors the status of controls during the simulation. Factors such as speed, whether the accelerator and brake are up or down, steering wheel direction and how many errors the student has made are constantly measured and recorded by the computer.

To simulate driving conditions, a modified projector is used to show specially designed driver training films to the class. A sensor on the projector, interfaced to the computer, "reads" a special code on the film. The code tells

the computer how the students should be reacting to the film, and in turn, the computer decides which students are reacting properly.

The Max/Drive software also generates a number of reports to make record-keeping an easier task. According to Eaton, with just a few simple commands the instructor can get a printout of the scores for a particular lesson, an up-to-date grade report for the entire class and class schedules and attendance reports.

### Performance counts

SSI chose the Tandy 2000 for a number of reasons Eaton explained. "First of all, the 2000 had the speed and performance needed to keep up with a full classload of independently operating simulators. And the 2000's low price made it an unbeatable value.

"But what really sold us on the Tandy 2000," continued Eaton, "was name recognition. Many of our prospective customers would be people who had never used a computer before." He added that SSI could not afford to scare customers away with a computer that was perceived as being just for big companies, or too complicated for "ordinary" people.

With the 2000, SSI could provide users with a name that's familiar to almost everyone: Radio Shack. "That name," said Eaton, "was a great advantage. With literally thousands of Radio Shack stores and Computer Centers around the world, our customers would have easy access to service, software and supplies. If there was any computer that could be sold to a potentially computer-shy market, it was a Tandy computer."

"We looked at a lot of computers," Eaton explained, "and we ran into a lot of guys who said they were computer salesmen. When we'd ask, 'What can you tell us about computers?' they'd say 'We can tell you any price in the store!' But they couldn't tell us much else."

That wasn't the problem with Steve Smith, manager of the Radio Shack Computer Center on East 41st Street in Tulsa. "When it came time to gather the information that we needed, Steve was extremely helpful," Eaton said. "If he couldn't answer the questions, he would get answers to the questions. That was what we needed."

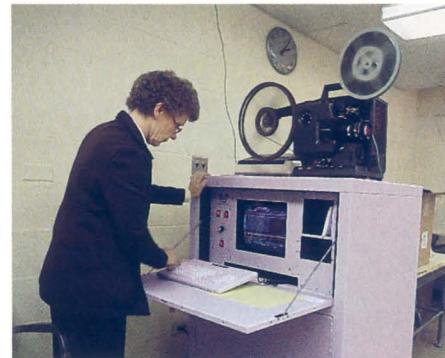
The Max/Drive System has been a tremendous success for SSI. "The first

system was installed in February of last year," Eaton recalled. "That was the actual introduction. Now we have twelve systems out there, and there's a lot of interest." The company has expanded, moving to larger facilities, and can now produce as many simulator systems as the market demands.

To keep track of the huge inventory of parts used in manufacturing the Max/Drive systems, the company uses a Tandy 6000 computer with three data terminals. "We desperately need a fourth!" Eaton laughed. SSI also uses the 6000 as a database for its customer support operations.

### Down the road

SSI has big plans for its future, and those plans include computers. "One project under development," Eaton said, "is a total licensing system for driver's license bureaus, controlled by



*Dr. Joan Martin operates the Max/Drive Manager at the Naperville High School in Naperville, Illinois.*

a Tandy 3000 computer. The system would administer all of the examinations required by the bureau, such as driving regulations and vision tests. When they're through, the system will even take their driver's license picture."

In the more immediate future, SSI is adapting the Max/Drive System for use in training heavy tractor/trailer drivers. Still another project, according to Darrell Armstrong, SSI's product support manager, will allow field technicians to access the company's Tandy 6000 via modem hookup, using Tandy 102 portable computers. The technicians will be able to get customer and inventory data, as well as technical information on the Max/Drive system.

With these developments, it looks like SSI will remain in the fast lane to success, leaving its competition far behind.

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## tangent

The Tandy Computer Business User's Group denoted in the past as the acronym, TCBUG has a new name—*Tangent*. "We felt the name should reflect a more professional, businesslike image for the organization," stated Fred Hill, president of Tangent. "The group is the same, as is our purpose and the goals we hope to accomplish."

A tangent is making contact at a single point or along a line; touching but not intersecting, aptly describing the user's organization as a medium for interaction between Tandy Corporation, Tandy

computer users and computer industry leaders. Members make contact at a single point, the annual conference held each spring, and at points along a line communicating among themselves, with Tandy Corporation and within the industry. Working in tangent, all groups benefit from the linear relationship.

Membership in Tangent is open to any business computer user. If interested, please contact Tangent either through CompuServe (GO TANGENT) or at P.O. Box 17580, Fort Worth, Texas 76102.

